Material Safety Data Sheet

Version 4.2
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Acrylonitrile
Product Number	:	31564
Brand	:	Fluka
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Highly toxic by skin absorption, Respiratory sensitiser, Corrosive

Target Organs

Liver, Central nervous system, Cardiovascular system., Kidney

Other hazards which do not result in classification
Lachrymator., Vesicant.

GHS Classification
Flammable liquids (Category 2)
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 2)
Skin irritation (Category 2)
Serious eye damage (Category 1)
Respiratory sensitization (Category 1)
Carcinogenicity (Category 1B)
Specific target organ toxicity - single exposure (Category 3)
Acute aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H310 + H330	Fatal in contact with skin or if inhaled
H315	Causes skin irritation.

H318	Causes serious eye damage.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H401	Toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ eye protection/ face protection.
P284	Wear respiratory protection.
P302 + P350	IF ON SKIN: Gently wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	3
Physical hazards:	0

NFPA Rating

Health hazard:	4
Fire:	3
Reactivity Hazard:	0

Potential Health Effects

Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin	May be fatal if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.
Ingestion	Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms	:	Vinyl cyanide
Formula	:	C_3H_3N
Molecular Weight	:	53.06 g/mol

Component		Concentration
Acrylonitrile		
CAS-No.	107-13-1	-
EC-No.	203-466-5	
Index-No.	608-003-00-4	

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 - 8 °C

Light sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Acrylonitrile	107-13-1	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Central Nervous System impairment Lower Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption			
		TWA	1 ppm	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen See Appendix A Potential for dermal absorption 15 minute ceiling value			

		C	10 ppm	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen See Appendix A Potential for dermal absorption 15 minute ceiling value			
	Substance listed; for more information see OSHA document 1910.1045			
	See 1910.1045			

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Immersion protection
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: > 480 min
Material tested:Butoject® (Aldrich Z677647, Size M)

Splash protection
Material: Chloroprene
Minimum layer thickness: 0.6 mm
Break through time: > 30 min
Material tested:Camapren® (Aldrich Z677493, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	clear, liquid
Colour	colourless

Safety data

pH	no data available
Melting	Melting point/range: -83 °C (-117 °F) - lit.

point/freezing point	
Boiling point	77 °C (171 °F) - lit.
Flash point	-5 °C (23 °F) - closed cup
Ignition temperature	481 °C (898 °F)
Autoignition temperature	no data available
Lower explosion limit	3 %(V)
Upper explosion limit	17 %(V)
Vapour pressure	115 hPa (86 mmHg) at 20 °C (68 °F)
Density	0.806 g/cm3
Water solubility	soluble
Partition coefficient: n-octanol/water	log Pow: 0.25
Relative vapour density	1.83 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid
Heat. May polymerize on exposure to light.
Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid
Oxidizing agents, Copper

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 78 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea. Gastrointestinal:Changes in structure or function of salivary glands.

Inhalation LC50
LC50 Inhalation - rat - 4 h - 333 ppm
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation. Behavioral:Tremor. Lungs, Thorax, or Respiration:Dyspnea.

Dermal LD50
LD50 Dermal - rabbit - 63 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Prolonged skin contact may cause skin irritation and/or dermatitis.

Other information on acute toxicity

no data available

Skin corrosion/irritation
Skin - rabbit - Severe skin irritation

Serious eye damage/eye irritation
Eyes - rabbit - Moderate eye irritation

Respiratory or skin sensitization
no data available

Germ cell mutagenicity

no data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Acrylonitrile)
NTP:	Reasonably anticipated to be a human carcinogen (Acrylonitrile)

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	Toxic if swallowed.
Skin	May be fatal if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.

Signs and Symptoms of Exposure
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

Synergistic effects
no data available

Additional Information
RTECS: AT5250000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 7.4 - 10.0 mg/l - 48 h

Persistence and degradability

Biodegradability	Biotic/Aerobic

Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus - 14 d Bioconcentration factor (BCF): 48

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1093 Class: 3 (6.1) Packing group: I
Proper shipping name: Acrylonitrile, stabilized
Reportable Quantity (RQ): 100 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1093 Class: 3 (6.1) Packing group: I EMS-No: F-E, S-D
Proper shipping name: ACRYLONITRILE, STABILIZED
Marine pollutant: No

IATA
UN number: 1093 Class: 3 (6.1) Packing group: I
Proper shipping name: Acrylonitrile, stabilized
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

OSHA Hazards
Flammable liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Highly toxic by skin absorption, Respiratory sensitiser, Corrosive

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Acrylonitrile	107-13-1	1993-04-24

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Acrylonitrile	107-13-1	1993-04-24

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Acrylonitrile	107-13-1	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Acrylonitrile	107-13-1	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Acrylonitrile	107-13-1	1993-04-24

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. Acrylonitrile	107-13-1	2007-09-28

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.